



Original Article

Maternal Role and Gender Integration in Preventing Stunting among Children

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ABSTRACT

Background: Child stunting remains a serious public health issue in Indonesia, with a high prevalence despite various intervention programs. This study aims to analyze the relationship between a mother's age at marriage, her knowledge about stunting, and her gender role in preventing stunting.

Methods: This research employed a descriptive analytical design with cross-sectional method and quota sampling technique. A total of 60 children aged 2–5 years in Palembang were divided into two groups: stunted and non-stunted children. Data were collected through questionnaires, interviews, and observations, then analyzed using chi-square tests, Independent Sample T-Test, and Mann Whitney tests with SPSS.

Results: The results show a significant relationship between mothers marrying before the age of 20 and the risk of delivering low birth weight babies, which contributes to stunting. Limited maternal knowledge about stunting also increases the likelihood of stunting cases. From a gender perspective, mothers of stunted children tend to have limited access, participation, control, and benefits in family decision-making.

Conclusion: In conclusion, mothers play a crucial role in stunting prevention; however, support from husbands and government policies to enhance maternal knowledge and promote gender equality within households are also essential to reduce stunting rates effectively.



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INTRODUCTION

In simple terms, stunting means failure to grow and develop in children. Children who experience stunting will have bodies that are shorter than the standard for their age and will generally experience a decrease in IQ (Jonah, Sambu, & May, 2018; Sinharoy, Clasen, & Martorell, 2020). Stunting can affect morbidity (Nugraheni, Margawati, Utami, & Wahyudi, 2023; Rahmandiani, Astuti, Susanti, Handayani, & Didah, 2019), mortality (Geberselassie, Abebe, Melsew, Mutuku, & Wassie, 2018; Nuradhiani, 2020), reproductive and physical work capacity (Dewey & Begum, 2011; Nurmalasari, Anggunan, Putri, & Siagian, 2023) which will later affect the quality of a nation. Therefore, WHO has appealed to all countries to be able to overcome the problem of stunting as soon as possible so as not to damage the quality of a nation in the future (Desalegn, Kinfe, ..., & 2016, 2016; Tessema, Belachew, & Ersino, 2013).

According to the National Health Research, the prevalence of stunting among Indonesian toddlers remains relatively high. In 2013, the figure reached around 37%, or nearly 9 million children. Although it has decreased to 21.5% by 2023, this figure is still far from the government's target of 14% by 2024. With figures that have previously exceeded 30%, Indonesia is categorized as a severe case according to WHO guidelines, which set a limit of 20% as an indicator of a serious

problem. This condition indicates the need for the government to continue strengthening stunting prevention efforts intensively and sustainably (Sari et al., 2021). Although data shows that the prevalence of stunting in Indonesia until 2023 is at 21.5%.

Risk factors for stunting are multidimensional, including malnutrition experienced by pregnant women and toddlers. In addition, the quality of childcare, work, education and gender relations experienced by mothers in the household also greatly affect the incidence of stunting (Beal, Tumilowicz, Sutrisna, Izwardy, & Neufeld, 2018; Wulandari, Laksono, & Kusri, 2022). In addition, the mother's age when married and pregnant is also a risk factor for babies being born with low birth weight, making it more likely for the child to experience stunting. Mothers who are pregnant or married at a very young age under 17 years old are factors that can inhibit fetal growth. Babies born prematurely have a high risk of heart defects, lung disorders, cerebral palsy, and developmental delays (Claudia et al., 2019; Goisis, Remes, Barclay, Martikainen, & Myrskylä, 2017; Goldstein et al., 2017; Liu et al., 2019).

Child marriage and pregnancy while still a teenager are the biggest risk factors for low birth weight and will have a significant impact on the child experiencing stunting. Lack of iron in adolescent girls can cause anemia. If pregnancy occurs, it will be susceptible to pregnancy complications which ultimately inhibit the growth and development of the fetus (Nur, Yusnita, & Hakim, 2023). In this case, women must have more knowledge about stunting by not releasing the role of husband/father. Given that parents have an obligation to care for their children so that they grow and develop healthily into adulthood. This is clearly stated in Article 26 paragraph 1a of Law Number 35 of 2014 which states; " Parents are obliged and responsible for caring for, nurturing, educating, and protecting children. In the State policy, the government of the Republic of Indonesia has been stated in the 2020-2024 National Medium-Term Development Plan (RPJMN) in which stunting is a priority program of the government based on gender integration. Then continued with President Prabowo's Asta Cita towards a golden Indonesia in 2045, especially the 4th goal which focuses on developing human resources including through the health sector and encouraging gender equality in various development sectors. One of the efforts that can be made is using the Gender Mainstreaming strategy (Maranditya, Andarwati, & Ruslanjari, 2025).

According to Presidential Instruction Number 9 of 2000, gender mainstreaming is a strategy carried out nationally and systematically to achieve gender equality and justice in aspects of human life through policies and programs that pay attention to the experiences, aspirations, needs and problems of women and men to empower women and men starting from the planning stage, preparation, implementation, monitoring, evaluation of all policies, programs, activities in various fields of development including in the family sphere. Thus, every family member must understand what is meant by gender and gender integration so that gender gaps that can cause gender discrimination can be avoided. Gender discrimination exists in several forms, namely stereotypes, marginalization, subordination, double burdens to violence. This gender discrimination does not rule out the possibility of being a factor causing family members whose children suffer from stunting. There are 4 (four) things that can be used as measuring tools for the causes of the gender gap, namely Access, Participation, Control and Benefits (APKM)(Fitrah, 2020).

From what is described above, the role of a woman as a mother of her children must really have thorough preparation starting from physical, mental and educational health and a gender perspective in order to create a healthy family. This article examines the relationship between the mother's age during pregnancy and the mother's knowledge of stunting. Then from a gender perspective, examine the role of mothers who have stunted and non-stunted children from the aspects of Access, Participation, Control and Benefits in their families. This study differentiates previous research that focused on nutrition, maternal age, or socioeconomic factors separately.

This study is crucial in filling this gap by simultaneously examining two dimensions: first, the relationship between maternal age during pregnancy and maternal knowledge about stunting, and second, how gender perspectives within the family contribute to the occurrence of stunting, thus providing a more holistic picture of the factors causing stunting within the family context.

METHODS

This study is a type of analytical description research, namely research that describes, records, analyzes differences in maternal age during pregnancy and maternal knowledge between groups of children who experience stunting and those who are not stunted with gender insight using the Cross-Sectional method.

Materials

The materials and tools used in this study were questionnaires, stationery, interview recording tools, cameras, and laptops.

Study Population and Sampling

This study employed a quota sampling method to ensure that the proportions of stunted and non-stunted children were balanced in the dataset. This technique was selected due to limited access to respondents in targeted high-stunting areas and the need to secure an adequate number of cases in each comparison group. The sample for this study was drawn from areas in Palembang with a high prevalence of stunting. A total of 60 children were included, consisting of 30 stunted and 30 non-stunted children as a comparison group. The inclusion criteria were children aged 2–5 years living in households with comparable socioeconomic conditions, which were assessed based on measurable indicators such as household income and parental occupation.

Data Collection Instruments

Observation of respondents' residential locations was carried out by observing and interviewing the respondents' parents to find out their birth weight, mother's age of marriage, parents' occupation, education, parents' income and understanding of gender. This interview was conducted to achieve a high level of sample homogeneity and screening for a history of diseases that are often suffered by children and gender understanding.

Data collection was also conducted through a structured questionnaire administered to respondent mothers to obtain information on nutritional knowledge, child health history, socioeconomic conditions, and gender understanding based on the APKM framework. The use of the questionnaire helped standardize data across respondents, although this instrument has not undergone validity and reliability testing, thus limiting the study.

Data Analysis

The research data were analyzed using SPSS and tested with the Independent Sample T-Test for normally distributed groups and Mann Whitney to determine the differences between the two sample groups. While gender understanding was taken from the interview results, edited and interpreted.

RESULTS

The analysis was conducted to determine the frequency distribution of respondents using descriptive statistical analysis and presented in tabular form.

Table 1. Maternal Age During Pregnancy

Sample Group	Number of Samples	Average Birth Weight (grams)	Birth Weight Range	Average Age of Mothers at Marriage
Stunting	30	2760 g	1900–3600 g	18 years
Non-Stunting	30	3140 g	3000–3500 g	25 years

Table 1 shows clear differences between the stunted and non-stunted groups in terms of mean birth weight and maternal age at marriage, indicating a strong association between maternal factors and stunting risk. In the stunted group, the mean birth weight was lower (2760 g) with a wider range, including very low values (1900 g), indicating vulnerability to poor nutrition early in life. Furthermore, the mothers' age at marriage in this group was younger (18 years), which may be biologically and socially related to mothers' lack of physical and economic preparedness, as well as their lack of knowledge about maintaining health during pregnancy. In contrast, in the non-stunted group, birth weight was higher (3140 g) and more stable (3000–3500

g), and mothers married at a more mature age (25 years), which is typically associated with better health and socioeconomic conditions. Overall, these data support the hypothesis that young maternal age and low birth weight are important factors increasing the risk of stunting.

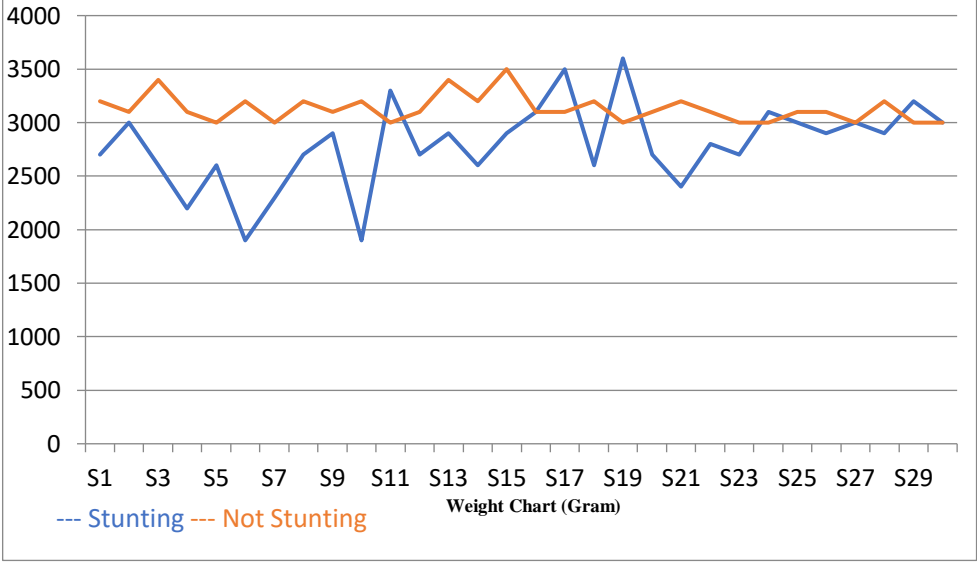


Figure 1. Graph of Distribution of Baby's Weight at Birth

Table 1 and graph 1 illustrate that children who experience stunting mostly have low birth weight, which is below 3000 grams, while children who do not experience stunting are born with normal weight, which is above 3000 grams. The group of children who experience stunting were born to mothers who were still teenagers, namely 17-19 years old, while the group of children who are not stunted were born to mothers over 22 years old. To determine the correlation between the two, further tests were carried out using chi square to see if there is a relationship between the mother's age during pregnancy, birth weight and the incidence of stunting.

Table 2. Correlation between Birth Weight and Stunting Incidence

Sample Group	Birth Weight				P Value
	Normal		Low		
	n	%	n	%	
Stunting	10	33.3	20	66.7	<0.001
Not Stunting	30	100	0	0	

The analysis results in Table 2 show a very strong relationship between birth weight and stunting. Of the 30 children with stunting, 20 (66.7%) were born with low birth weight (LBW), while all children in the non-stunted group (100%) were born with normal birth weight. This difference in distribution indicates that children born with LBW are more susceptible to stunted growth compared to children born with normal weight. The p-value of 0.000, which is far below the 0.05 significance level, confirms that this relationship is highly statistically significant and does not occur by chance, so LBW can be considered a major risk factor for stunting. This finding emphasizes the importance of interventions during pregnancy, such as fulfilling maternal nutrition, preventing anemia, and regular pregnancy monitoring to reduce the risk of LBW.

Table 3. Correlation between Age of Mother's Marriage and Incidence of Stunting

Sample group	Mother's Age During Pregnancy				P Value
	17-19 years		>20 years		
	n	%	n	%	
Stunting	28	93.3	2	6.7	<0.001
Not Stunting	0	0	30	100	

The results in Table 3 show a very strong association between the mother's age during pregnancy and the incidence of stunting. All mothers who gave birth at the age of 17–19 years contributed predominantly to the stunting group, with 28 cases recorded, while only 2 mothers in this age group had children who were not stunted. In contrast, all 30 mothers who gave birth at the age of more than 20 years fell into the non-stunting group, with zero cases of stunting. The p-value of 0.000 indicates that this association is statistically significant, meaning the likelihood that this relationship occurred by chance is extremely small. This statistical pattern suggests that maternal age is a critical factor influencing child growth outcomes and warrants further examination of the biological and socioeconomic mechanisms underlying this relationship.

Biologically, mothers who become pregnant at a young age often have incomplete physical maturity, inadequate nutritional reserves, and higher susceptibility to pregnancy complications, all of which can negatively affect fetal growth and increase the risk of stunting. Socially and economically, adolescent mothers tend to have lower access to health information, limited prenatal care, and a higher probability of experiencing household poverty or educational limitations. These combined factors create an unfavorable environment for optimal fetal development. Therefore, the findings not only underscore the importance of delaying pregnancy to above 20 years of age as recommended but also highlight the need for community interventions, reproductive health education, and strengthened maternal health programs to prevent early pregnancy and reduce stunting prevalence.

Table 4. Correlation between Mother's Age at Marriage and LBW

Sample Group	Birth Weight of Baby (BBLR)				P Value
	BBLR		Normal		
	n	%	n	%	
17-19 Years	20	66.7	10	33.3	<0.001
20- 26 Years	0	0	30	100	

The results in Table 4 show a very strong and significant relationship between maternal age at marriage and the incidence of low birth weight (LBW) babies. Of the 30 mothers who married at the ages of 17–19, 20 gave birth to LBW babies and only 10 gave birth to babies with normal weight. In contrast, in the group of mothers who married at the ages of 20–26, no cases of LBW were found; all 30 babies were born with normal weight. A p-value of 0.000 confirms that this relationship is statistically significant, making it unlikely that it is due to chance alone. These data indicate that mothers who marry at a young age are more vulnerable to experiencing suboptimal pregnancies, both biologically and socially, due to factors such as physical immaturity, lack of access to antenatal care, and more vulnerable economic conditions. These factors contribute to the increased risk of LBW, thus emphasizing the importance of preventing early marriage as an effort to reduce the incidence of LBW and improve maternal and infant health.

Table 5. Relationship between maternal knowledge and stunting incidence

No.	Variables		Level				P Value	Risk Estimate
			Stunting		Not Stunting			
			n	%	n	%		
1	What is another name for stunting?	Know	0	0	28	93.3	0.000	0.037
		Don't Know	30	100	2	6.7		
2	Causes of Stunting	Know	8	26.7	30	100	0.000	0.055
		Don't Know	22	73.3	0	0		
3	What are the long-term effects of stunting?	Know	3	10	28	93.3	0.000	0.008
		Don't Know	27	90	2	6.7		
4	Age Limit for Exclusive Breastfeeding	Know	30	100	30	100	0.380	1.029
		Don't Know	0	0	0	0		

No.	Variables		Level				P Value	Risk Estimate
			Stunting		Not Stunting			
5	Benefits of Breastfeeding	Know	5	16.7	20	66.7	0.000	0.1
		Don't Know	25	83.3	10	33.3		
6	Age Permitted for Marriage and Childbirth	Know	0	0	30	100	0.000	0.031
		Don't Know	30	100	0	0		
7	Nutritional Needs During Pregnancy	Know	0	0	26	86.7	0.000	0.031
		Don't Know	30	100	4	13.3		
8	Complementary Food Provision Patterns	Know	0	0	28	93.3	0.000	0.042
		Don't Know	30	100	2	6.7		

Table 5 shows that the knowledge of mothers whose children experience stunting is considered poor because it can be seen from the mother's ability to answer questions given by researchers related to stunting problems. Most respondents from the group of stunted children answered that they did not know what stunting is, its causes, and its long-term impacts. They even do not know the minimum age allowed according to WHO for a woman to conceive and give birth. In contrast to mothers of children who are not stunted, most of them understand about stunting and the correct diet both during pregnancy and when the child is 6 months old and above. And for the group of mothers whose children are not stunted, they know the safe age for pregnancy and childbirth.

From the data processing related to the research, seen from 4 (four) aspects, the factors that can be the source of stunting through the role of the mother are explained in the table below:

Table 6. The Role of Mothers Who Have Stunting Children Reviewed from Access, Participation, Control and Benefits

No	Aspect	Findings
1	Access: Opportunities for mothers to reach out to obtain resources in the family.	In the household life of women who have stunted children, they generally focus on housework. There is no opportunity to get important information about healthy living in the family from various sources. If you want to follow activities outside the home, you are hampered by funds, husband's permission and housework.
2	Participation: participation/involvement of mothers in the process of managing the household.	The role of women who have stunted children is active only as routine work in the household. What they have done is considered right, namely taking care of children, husbands and other families (housework).
3	Control: ability and authority of mothers in the household	The authority in the household is predominantly in the hands of the husband. Women who have stunted children find it difficult to argue with their husbands and they feel sorry for their husbands because they have already earned a living.
4	Benefits: Benefits obtained or felt	Because women who have stunted children focus on the domestic world and lack knowledge from outside, it has an impact on family health where there are family members who receive less attention to nutrition.

The findings in Table 6 indicate that the role of mothers with stunted children is significantly influenced by limited access, minimal participation, weak control, and the low benefits they receive from their households. In terms of access, mothers tend to rely on domestic work and lack access to important information about nutrition and health, primarily due to limited financial support, husbands' permission, and the burden of household work. In terms of

participation, their involvement is limited to routine activities without any opportunity to participate in decision-making related to managing the family's health or welfare. In terms of control, authority in the household is dominated by husbands, making it difficult for mothers to voice their opinions or influence important decisions, including those impacting their children's health. As a result, the benefits received are minimal, and there is a lack of knowledge and attention to ensuring adequate family nutrition, which directly contributes to stunting in children. These findings confirm that stunting is not solely a biological factor but is also closely linked to gender inequality, limited maternal empowerment, and low decision-making capacity within the household.

Meanwhile, the results of data processing from women who have children who are not stunted in the gender review were found as follows:

Table 7. The Role of Mothers Who Have Children Who Are Not Stunted, Reviewed from Access, Participation, Control and Benefits

No	Aspect	Findings
1	Access: Opportunities for mothers to reach out to obtain resources in the family.	Women (mothers) have access to information about healthy living in the family from various sources.
2	Participation: participation/involvement of mothers in the process of managing the household.	The active role of women in routine household work with responsive knowledge to do things that lead to a healthy family.
3	Control: ability and authority of mothers in the household	The authority in the household is not dominant in the hands of the husband. Women who have children who are not stunted have the authority to do things that aim to make their children and family healthy in the household.
4	Benefits: Benefits obtained or felt	Because women who have children who do not experience stunting have room to move and knowledge about stunting in the household and the husband plays a good role, the family becomes healthy and the children are free from stunting.

Table 7 shows that mothers with children who are not stunted are generally in a more empowered position within the family, in terms of access, participation, control, and benefits received. They have the opportunity to obtain important information about family health from various sources, enabling them to implement more appropriate and responsive parenting practices. Through participation, mothers not only carry out domestic routines but are also actively involved and possess sufficient knowledge to ensure a healthy home environment. From a control perspective, decisions regarding child and family health are not entirely dominated by husbands, allowing mothers sufficient authority to determine the best course of action for their children's well-being. This situation produces tangible benefits, namely the creation of healthier families, optimal parenting patterns, and children who are protected from the risk of stunting. In other words, women's empowerment at the family level plays a significant role in preventing stunting.

DISCUSSION

1. The Relationship Between Low Birth Weight (LBW) and Stunting

Children who experience stunting are mostly born with low birth weight (LBW) (under 3000 grams), with 66.7% of stunting cases coming from the LBW group. In contrast, 100% of children who are not stunted have a normal birth weight (above 3000 grams). The correlation test showed a very strong and significant relationship ($p=0.000$) between birth weight and stunting incidence.

These findings are consistent with the theory that low birth weight (LBW) is a strong predictor of stunting. Low birth weight (LBW) often reflects fetal growth restriction (IUGR)

caused by chronic maternal undernutrition during pregnancy (Sukiman, Bamahry, Irwan, Laddo, & Arifin, 2022; Tahir, Hafid, Yusuf, & Mohamad, 2025; Trisiswati, Mardhiyah, & Sari, 2021). The period in the womb is the first golden period, and growth disorders in this phase are difficult to correct after birth, so that LBW children are more susceptible to growth failure or stunting (Rahayu, Yulidasari, Putri, & Anggraini, 2018).

2. The Relationship Between Maternal Age at Pregnancy/Early Marriage and Stunting

The study showed a very strong and significant relationship ($p=0.000$) between maternal age during pregnancy/early marriage (17-19 years) with the incidence of stunting and LBW. This is based on a) Mothers who married/became pregnant at a young age (17-19 years) predominantly gave birth to stunted children (28 cases) and significantly more gave birth to LBW babies (20 out of 30 mothers) and b) Conversely, all mothers who married/became pregnant at a mature age (>20 years or 20-26 years) gave birth to non-stunting children and babies with normal weight.

Pregnancy at the age of less than 20 years, the pelvis and uterus are still small and the reproductive organs are not yet mature. Over the age of 35 years, the maturity of the reproductive organs decreases compared to the age of 20-35 years. This can result in health problems during childbirth and the risk of congenital defects and LBW. The younger and older the age of a pregnant mother, the more it will affect the nutritional needs required. Young age needs a lot of additional nutrition because in addition to being used for their own growth and development, they also have to share it with the fetus they are carrying. Old age also needs a lot of energy because the function of the organs is getting weaker and is required to work optimally, so it requires sufficient additional energy to support the ongoing pregnancy (Dewi & Nuryani, 2021; Fuchs, Monet, Ducruet, Chaillet, & Audibert, 2018; Ningrum, Gumiarti, & Toyibah, 2021; Wong, Twynstra, Gilliland, Cook, & Seabrook, 2020; Yount, Crandall, & Fai, 2018).

These findings support research findings that maternal age during pregnancy is associated with stunting. This study also recommends the importance of providing information about stunting to the public, especially couples planning a pregnancy, to promote physical and psychological preparation early in pregnancy and improve knowledge of child nutrition. Furthermore, public education regarding pregnancy at high-risk ages is needed to prevent further increases in stunting (Pusmaika, Novfrida, Simatupang, Djami, & Sumiyati, 2022; Sani, Solehati, & Hendarwati, 2019).

3. The Relationship Between Maternal Knowledge and Stunting

There is a very strong and significant correlation ($p=0.000$) between maternal knowledge about stunting, causes, long-term impacts, and safe age for pregnancy/childbirth with the incidence of stunting. This is based on a) Mothers of stunted children mostly do not know about stunting (definition, causes, impacts), safe age for pregnancy, pregnancy nutrition, and the correct pattern of providing complementary foods; and b) In contrast, mothers of non-stunted children show a good understanding of these things.

The level of maternal knowledge is very important in determining the quality of child care and feeding (PPM) practices (Nengsi, Khasanah, & Astuti, 2025). According to Sodikin et al. (Sodikin, Endiyono, & Rahmawati, 2018) stated that there is a significant relationship between maternal knowledge and the nutritional status of toddlers, this is because good maternal knowledge about nutrition will make it easier for mothers to pay attention to their children's food intake, while mothers who have less knowledge will have difficulty applying the information. Feeding is also influenced by the level of knowledge, education, and economic level, the higher the level of parental education, the higher the knowledge in the practice of feeding children (Kusumaningtyas, Husodo, & Indraswari, 2017).

4. The Role of Maternal Empowerment and Stunting

This study shows that limited maternal empowerment within the household is a strong non-biological risk factor for stunting. Mothers of stunted children are characterized by: Limited access to health/nutrition information; Participation only in routine domestic affairs; Weak control over household decisions (dominated by the husband); and Low benefits (neglecting family nutrition). In contrast, mothers of non-stunted children are characterized by: Good access to health

information; Active participation in practicing healthy living; Sufficient control to make family health decisions; and Benefits in the form of a healthy family and stunting-free children.

These findings broaden the understanding of stunting as a problem that is not only biologically medical, but also structurally social, related to gender equality and women's empowerment. A lack of maternal control within the household (including over financial and health-related decisions) can hinder optimal nutrition for both mother and child. Good knowledge is capital for a mother which is used to provide good care for her child. From several previous studies, it is known that the mother's knowledge of nutrition with the height index in children. Furthermore, other results show that the incidence of stunting in children is also related to the mother's knowledge (Abri, 2022).

CONCLUSIONS

The results of this study indicate that stunting is significantly influenced by young maternal age at marriage and pregnancy, low birth weight, and maternal lack of knowledge about health and nutrition. Stunted children are generally born to mothers aged 17–19 years with low birth weight, while non-stunted children are born to more mature mothers with a good understanding of health. In addition to biological factors, stunting is also closely related to gender inequality, where mothers have limited access, participation, and control in household decision-making. However, this does not mean that men (husbands) are not responsible for creating a healthy and stunting-free family; in fact, both parties must play an equal role. Women need to have fair access, participation, control, and benefits in gaining knowledge about stunting and not be encouraged to marry young, so that stunting prevention efforts can be more effective and equitable.

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